

Appl. No. 09/988,829

Amendment dated August 29, 2003

Reply to Office Action dated March 18, 2003 and Notice of Non-Compliant Amendment dated August 26, 2003

Amendment to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-19. (canceled).

Claim 20. (currently amended):

An infinitely variable cone pulley transmission ~~and the~~ for generating of axial contact pressure forces ~~of the cone pulleys~~ upon a traction means, comprising:

an input side shaft and an output side shaft;

cone pulleys arranged on the input side and output side shafts, the traction means rotating between the cone pulleys;

via tensioning means arranged on the transmission shafts, which exert for exerting forces in axial direction upon respectively one cone pulley that can be displaced axially along the respective transmission shaft, wherein the exerting means including hydraulic tensioning means are provided on a first transmission input side shaft for adjusting and maintaining the transmission ratio and a spring supported tensioning means that is braced against a support, fixed relative to the output side shaft, is provided on the second transmission output side shaft,

wherein the cone pulleys on the output side shaft include an axially fixed cone pulley and an axially movable cone pulley with an extended hub are jointly arranged on the second transmission output side shaft,

wherein the cone pulleys on the input side and output side shafts are rotationally connected and jointly rotate on their transmission the respective shaft and are coupled to said transmission the respective shaft and the exerting means exerts via a contact pressure mechanism that depends on the rotational moment or the rotational moment and the transmission ratio,

wherein the exerting means of the output side shafts includes the contact pressure mechanism consists of a cam sleeve that is fixedly connected to the output side shaft, a cam

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sleeve formed by the free end of the an extended hub, and roll bodies for transmitting the force, wherein said roll bodies are inserted between opposite arranged cam curves and rotate around the roll body axes extending in radial direction, relative to the ~~transmission~~ output side shaft,

wherein the exerting means further includes said roll bodies are guided by rings for guiding and holding the roll bodies, ~~are held~~ at a mutual distance to each other in the axial center region between the cam ~~sleeves~~ curves with the aid of a spring that is arranged coaxial on the extended hub.

Claim 21. (currently amended): A cone pulley transmission according to claim 20, ~~characterized in that~~ wherein the cone pulleys of the output side shaft are arranged on a hollow cone pulley shaft, ~~which is positioned on the transmission output side shaft,~~ such that it can rotate but cannot be displaced in axial direction, ~~that~~ wherein the axially fixed cone pulley is rigidly connected to the hollow cone pulley shaft, ~~that and~~ the axially movable cone pulley is connected to the hollow shaft so as to rotate ~~along~~ and that the cam sleeve that is fixedly connected to the output side shaft is arranged next to the hollow cone pulley shaft ~~on the transmission shaft,~~ such that it can rotate along and cannot be displaced, ~~at least not~~ in axial direction away from the ~~opposite~~ oppositely arranged cam sleeve.

Claim 22. (currently amended): A cone pulley transmission according to claim 21, ~~characterized in that~~ wherein the axially fixed cone pulley forms one piece with the hollow cone pulley shaft.

Claim 23. (currently amended): A cone pulley transmission according to claim 20, ~~characterized in that~~ wherein the roll bodies ~~engage in corresponding recesses on the rings with the aid of~~ include pinions that are coaxial to ~~their~~ a rotational axes of the pinions and project in radial direction relative to the ~~transmission~~ output side shaft from the roll bodies for engaging

corresponding recesses.

Claim 24. (currently amended): A cone pulley transmission according to claim 23, ~~characterized in that a~~ wherein the rings include a guide ring and a holding ring, the holding ring is being arranged in a radial direction coaxial to the ~~transmission output side~~ shaft, either inside or outside of the roll bodies, and ~~that wherein~~ the pinions ~~on~~ of the roll bodies are positioned so as to rotate inside holding ring bores, extending in radial direction relative to the ~~transmission output side~~ shaft.

Claim 25. (currently amended): A cone pulley transmission according to claim 23, ~~characterized in that wherein,~~ in radial direction relative to the ~~transmission output side~~ shaft, wherein the rings include a guide ring and a holding ring, the a guide ring being in the form of a hollow-cylindrical sleeve is arranged outside of the roll bodies, ~~which wherein the~~ guide ring encloses ~~these the~~ roll bodies and the extended hub, ~~that and~~ the guide ring can be displaced in axial direction along the extended hub, but is positioned such that ~~it the guide ring~~ cannot rotate relative to ~~this the extended~~ hub, ~~that wherein at least some of the outward-projecting~~ pinions on the roll bodies are outward projecting and are positioned ~~such that they can~~ to rotate in circumferential slots of the guide ring that extend along a radial plane of the ~~transmission output side~~ shaft, ~~which the slots have~~ having an axial width corresponding to the diameter of the pinions and are held in the region of the axial center between the cam sleeves, ~~that wherein,~~ in circumferential direction, the length of the circumferential slots corresponds to at least half the maximum mutual circumferential path for the cam sleeves of the ~~contact pressure mechanism exerting means~~ and ~~that wherein~~ the guide ring has an end facing the axially movable cone pulley ~~is formed as forming an~~ extension onto the spring, such that moving in the same direction, ~~it the~~ guide ring respectively traverses essentially half the axial distance traversed by the movable cone pulley.

Claim 26. (currently amended): A cone pulley transmission according to claim 25, ~~characterized in that~~ wherein the spring is supported on one side on the axially movable cone pulley and on the other side on the cam sleeve that is fixedly connected to the output side shaft.

Claim 27. (currently amended): A cone pulley transmission according to claim 25, ~~characterized in that~~ wherein the spring is ~~essentially~~ a disk spring assembly, including one half of which is arranged on the hub and the other half on the guide ring, ~~that~~ wherein the spring is supported on the cam sleeve via a hollow-cylindrical intermediate segment that encircles the guide ring and ~~that~~ wherein the guide ring ~~with~~ has a radially outward pointing collar on ~~the~~ one end that is captured between ~~the~~ two halves of the disk spring assembly.

Claim 28. (currently amended): A cone pulley transmission according to claim 25, ~~characterized in that~~ wherein ~~on the guide ring section located on the hub,~~ the guide ring is provided with at least one groove that extends parallel to the axis of the ~~transmission~~ output side shaft, wherein the hub includes a radial in which a pin engaging the at least one groove that is supported by the hub engages to prevent rotation.

Claim 29. (currently amended): A cone pulley transmission according to claim 23, ~~characterized in that~~ wherein, outside of the roll bodies and in radial direction relative to the ~~transmission~~ output side shaft, wherein the rings include a guide ring that encompasses the roll bodies is arranged in the form of at least one assembly of axially side-by-side arranged, ring-shaped corrugated springs, having reciprocal undulations in axial direction along the circumference, ~~that this~~ wherein the guide ring is captured in axial direction between a rotating collar supported by the hub and a collar supported by the cam sleeve that is fixedly connected to the shaft and is kept axially centered relative to the exerting means ~~contact pressure mechanism~~, and ~~that~~ wherein ~~radially outward projecting~~ at least some of the pinions on the roll bodies are radially outward projecting pinions are positioned rotating in the axial center of said guide ring.

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Claim 30. (currently amended): A cone pulley transmission according to claim 29, ~~characterized in that~~ wherein the guide ring ~~consists of~~ includes two identical corrugated spring assemblies, arranged axially side-by-side, ~~that~~ wherein the corrugated springs of each assembly are braced against each other by ~~means of the~~ undulation peaks that face each other and are fixedly connected, and ~~that~~ wherein the pinions on the roll bodies are positioned ~~such that they can so as to~~ rotate between the corrugated spring assemblies.

Claim 31. (currently amended): A cone pulley transmission according to claim 30, ~~characterized in that~~ wherein the rings include a holding ring is arranged outside of the roll bodies, between ~~these~~ the roll bodies and the guide ring of the corrugated springs, and ~~that~~ wherein the holding ring is provided with a rotating collar that projects at the center radially outward from the holding ring and engages between the corrugated spring assemblies.

Claim 32. (currently amended): A cone pulley transmission according to claim 31, ~~characterized in that~~ wherein the bores in the holding ring, ~~which~~ are designed to accommodate the pinions on the roll bodies, ~~also~~ and extend through the collar.

Claim 33. (currently amended): A one pulley transmission according to claim 31, ~~characterized in that~~ wherein the axial width of the collar corresponds to the width of the roll body pinions.

Claim 34. (currently amended): A cone pulley transmission according to claim 32, ~~characterized in that~~ wherein ~~the~~ an axial width of the collar corresponds to ~~the~~ a width of the roll body pinions.

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Claim 35. (currently amended): A cone pulley transmission according to claim 30, ~~characterized in that~~ wherein the spring is arranged on the hub and is braced against the axially movable cone pulley ~~as well as~~ and the cam sleeve that is fixedly connected to the shaft with the aid of an essentially hollow-cylindrical intermediate segment that encompasses the guide ring.

Claim 36. (currently amended): A cone pulley transmission according to claim 35, ~~characterized in that~~ wherein the collar supported by the cam sleeve, ~~which is~~ fixed relative to the shaft, and the intermediate segment are combined to form one component.

Claim 37. (currently amended): A cone pulley transmission according to claim 20, wherein the hydraulic tensioning means comprises the ~~associated~~ respective axially displaceable cone pulley as bottom for a pressure cylinder connected to the cone pulley, ~~which~~ wherein the pressure cylinder forms together with a piston that is fixed relative to the shaft a pressure chamber to which a pump supplies a pressure medium, ~~taken~~ from a pressure medium supply via a pressure medium supply line for maintaining and adjusting a transmission ratio in a manner determined by a control valve, ~~characterized in that~~ wherein a reversing valve is arranged inside the pressure medium supply line and such that ~~via the reversing valve,~~ the pressure chamber can be connected to the pressure medium supply or the intake side of a pressure medium pump.

Claim 38. (currently amended): A cone pulley transmission according to claim 37, ~~characterized in that~~ wherein the reversing valve can be activated by ~~the~~ a control for the control valve.